

REMARKS

This is in response to the Office Action that was mailed on May 28, 2004. An earlier amendment of claims 1 and 2 has been partially reversed. The limitation in question ("wherein a total sum of the sodium carbonate and the alkali metal silicate is 19% or more by weight of the detergent composition") is not necessary to differentiate the present invention over the prior art. Claims 1 and 2 as amended herein reflect the disclosure in lines 10-16 on page 9 of the specification:

... when sodium carbonate is contained in the amount specified above, the dispersibility can be even more well maintained without forming crystals of hydrates between the detergent granules under the condition of allowing to stand the detergent composition in cold water for a long period of time. Therefore, it is desired that sodium carbonate is contained in an amount, calculated on the basis of an anhydride, of 15% by weight or less

Also, a typographical error in claim 2 has been corrected as kindly suggested by the Examiner. Claims 3 and 4 are amended based upon disclosure in the paragraphs bridging pages 2-3 and 3-4 of the specification, respectively. New claim 12 is based upon disclosure in the specification, from line 20 on page 9 to line 3 on page 10. New claim 13 is based on disclosure in lines 2-7 on page 9 of the specification. New claim 14 is based upon disclosure in lines 4-6 on page 10 of the specification. New claim 15 is based upon disclosure in the paragraph bridging pages 10-11 of the specification. No new matter is added by this Amendment. Claims 1-8 and 12-15 are pending in the application.

Claim 2 and 4-8 were rejected under the second paragraph of 35 U.S.C. §112, due to their recitation of the phrase "and 15% or less" near the beginning of claim 2 in connection with its recitation of the weight ratio of an anionic

surfactant to a nonionic surfactant. That phrase has been deleted from claim 2, thereby obviating this ground of rejection.

Claims 1-8 were rejected under 35 U.S.C. §103(a) as being unpatentable over WO94/02573 (Van Dijk). The rejection is respectfully traversed.

The presently claimed compositions differ from the prior art compositions, in among other respects, with respect to the amount of sodium carbonate that they contain.

Van Dijk discloses an embodiment having 15.44% by weight of sodium carbonate. This number was determined as follows: The base powder in Van Dijk weighs 45.416 kg (dried) and contains 4.8 kg sodium carbonate. The base powder thus contains 10.57% sodium carbonate. For the second process particle – 32 kg of base powder $32 \text{ kg} \times 10.57\%$ gives 3.44 kg sodium carbonate; 3.44 kg sodium carbonate in a total of 88 kg is a 2nd process particle having 3.91% sodium carbonate. Mixing 6 kg of sodium carbonate with 44 kg of the 2nd process particle give $6 + (44 \times 3.91\%) = 7.72 \text{ kg}$ of sodium carbonate in a total material weighing 50 kg. Thus the Van Dijk embodiment has 15.44 % by weight of sodium carbonate.

In contrast, the presently claimed compositions contain 15% or less by weight of sodium carbonate. A new experiment is described in an enclosure with this response. From this experimental comparison, it is clear that the presently specified value of 15% or less by weight of sodium carbonate in the detergent compositions claimed herein is significant. As the Examiner will see from the additional experiment enclosed herewith, a composition comprising 15.65 weight-% sodium carbonate (more than 15%) left substantial aggregates while a generally similar composition comprising only 14.14 weight-% sodium carbonate (less than 15%) produced no aggregates. There is a clear line of distinction between the presently claimed invention and the van Dijk disclosure with respect to sodium carbonate content.

Moreover, new claim 12 requires, not only that the composition claimed comprises 15% or less by weight of sodium carbonate, but also that the total sum of the sodium carbonate and the alkali metal silicate in the composition claimed is 19% or more by weight of the detergent composition. This constitutes an additional feature of the compositions of the present invention which is not taught or suggested by van Dijk.

To continue, van Dijk requires that his compositions include 5-20 weight-% filler particles, and that at least 1 weight-% (20% of 5%) of the filler particles is either less than 150 microns in size or greater than 1180 microns in size. See *e.g.* subparagraph (ii) of claim 1 of the van Dijk reference.

Finally, the van Dijk disclosure fails to teach or suggest a third important feature of the present invention: Each of the claims herein requires that the high-density detergent composition has a total summation of a product of a mass base frequency W_i of each group of classified granules which satisfies formula (A) or (B):

$$\Sigma(W_i \cdot V_i) \geq 95(\%) \quad (A) \quad \Sigma(W_i \cdot V_i) \geq 97(\%) \quad (B)$$

wherein the classifier comprises a series of sieves having sieve-openings respectively of 2000 μm , 1410 μm , 1000 μm , 710 μm , 500 μm , 355 μm , 250 μm , 180 μm , and 125 μm , and a receiver.

As pointed out in the specification, in this invention the base detergent granules are subjected to **particle size adjustment**. This particle size adjustment can be accomplished, for instance, by blending groups of classified granules such that formula (A) is satisfied. Specification, pages 21-24.

To visualize the significance of particle size that characterizes the present invention, the Examiner's attention is respectfully drawn to Table 2 (specification page 41). A portion of the data from Table 2 is given here:

	Ex. 1	Ex. 2	Ex. 3
1410-2000 μm	0.00	0.01	0.00
1000-1410 μm	0.00	0.02	0.00
0710-1000 μm	0.00	0.06	0.00
0500-0710 μm	0.01	0.07	0.02
0355-0500 μm	0.13	0.16	0.07
0250-0355 μm	0.40	0.40	0.14
0180-0250 μm	0.40	0.18	0.28
0125-0180 μm	0.04	0.08	0.33

Thus, of the particles in the Example 1 composition, 1% have a size in the range of 500-710 μm , while 40% have a size in the range of 180-250 μm . In contrast, of the particles in the Example 2 composition, 7% have a size in the range of 500-710 μm , while only 18% have a size in the range of 180-250 μm .

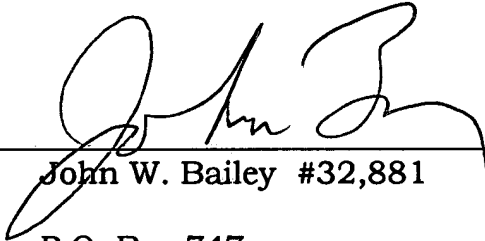
Applicants are not claiming a detergent composition having “an average particle size of about 400 microns” or any other such broad-based particle size measurement. Instead, the present claims are directed to detergent compositions that have specified **particle size profiles**. As explained in detail in the specification, these particle size profiles provide detergent compositions having unexpectedly superior properties.

Neither Van Dijk nor any other prior art of record teaches or suggests that varying particle size distribution in a detergent composition can have any impact on the performance of the composition. It goes without saying that the prior art does not lead those of ordinary skill in the art to the novel detergent compositions having the particle size profiles required by the present claims.

If there are any outstanding issues in the present application, the Examiner is respectfully requested to contact Richard Gallagher (Reg. No. 28,781) at (703) 205-8008.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 CFR 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,
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Enclosure:
"An Additional Experiment"

AN ADDITIONAL EXPERIMENT

A detergent composition was prepared in accordance with Preparation Example 5 on pages 33-34 of the specification. However, instead of 10 parts of sodium carbonate, the present experiment employed 11.25 parts of sodium carbonate. The detergent composition prepared in this new experiment comprised 15.65% by weight of sodium carbonate while the detergent composition of Example 12 (page 42 of the specification), which was obtained in accordance with Preparation Example 5, comprised 14.14% by weight of sodium carbonate.

As reported on page 42 of the specification, the dispersibility of the composition of Example 12, as determined in accordance with "Evaluation 2", was rated "I", *viz.* "no aggregates". The newly prepared detergent composition, in contrast, was found to have an Evaluation 2 dispersibility rating of "IV", *viz.* "aggregates remaining in large amounts (a large number of masses having a diameter exceeding 6 mm being found)".

Therefore, it is clear from this experimental comparison that the presently specified value of 15% or less by weight of sodium carbonate in the detergent compositions claimed herein is significant – inasmuch as a composition comprising 15.65 weight-% sodium carbonate (more than 15%) left substantial aggregates while a generally similar composition comprising only 14.14 weight-% sodium carbonate (less than 15%) produced no aggregates.